

We claim:

- 1 1. A device for generating electromagnetic waves, in particular for data transfer  
2 between a motor vehicle and a data storage medium, comprising:  
3       an energy supply device for providing an alternating voltage;  
4       an oscillating circuit to which the alternating voltage is applied for generating  
5 the electromagnetic waves, and  
6       a choke coil between at least one part of the energy supply device and the  
7 oscillating circuit.
  
- 1 2. The device according to Claim 1, wherein the energy supply device has a  
2 terminal capable of being switched over between two voltages which is connected  
3 through the choke coil to an oscillating circuit terminal.
  
- 1 3. The device according to Claim 2, wherein the energy supply device has a  
2 further terminal capable of being switched over between two voltages which is  
3 connected through a capacitor or a transmitting coil of the oscillating circuit to the one  
4 oscillating circuit terminal.
  
- 1 4. The device according to Claim 1, wherein the energy supply device contains a  
2 DC voltage source, a converter coil and two push-pull switches, the DC voltage source  
3 is connected by way of the choke coil to an inner tapping point of the converter coil  
4 whose outer tapping points are connected in each case to one of the push-pull switches  
5 which assume switching states in push-pull fashion, and the output voltage from the  
6 outer tapping points of the converter coil is applied to the oscillating circuit.
  
- 1 5. The device according to Claim 4, wherein the converter coil is formed by an  
2 autotransformer.

1       6.     The device according to Claim 4, wherein a switch is provided between the DC  
2 voltage source and the choke coil such that in the event of simultaneous closure of the  
3 push-pull switches and opening of the switch the oscillation of the oscillating circuit  
4 decays abruptly.

1       7.     The device according to Claim 6, wherein the push-pull switches are switched  
2 in tune to the natural frequency of the oscillating circuit, the switch is switched in tune  
3 to the switching frequency of the push-pull switches and is operated with a selectable  
4 pulse width.

1       8.     The device according to Claim 6, wherein a terminal is provided between the  
2 switch and the choke, to which is connected a free-wheeling diode.

1       9.     The device according to Claim 4, wherein one terminal side of a diode is  
2 connected between the choke coil and the inner terminal of the converter coil and the  
3 other terminal side of the diode is connected to the DC voltage source.

1       10.    The device according to Claim 4, additionally comprising a transformer,  
2 having a primary coil and a secondary coil which are coupled magnetically, whereby  
3 the primary coil is connected to the outer tapping points of the converter coil and one  
4 output of the secondary coil is connected to the one oscillating circuit terminal and the  
5 other output of the secondary coil is connected by way of a capacitor or a transmitting  
6 coil of the oscillating circuit to the one oscillating circuit terminal.

1       11.    The device according to Claim 4, wherein the converter coil is the primary coil  
2 of a transformer, and one output of the secondary coil of the transformer, which is  
3 magnetically coupled to the primary coil, is connected to the one oscillating circuit  
4 terminal and the other output is connected by way of a capacitor or a transmitting coil  
5 of the oscillating circuit to the one oscillating circuit terminal.

1    12. A method for operating a device for generating electromagnetic waves  
2    comprising the steps of:

3            - providing an DC voltage by an energy supply device;

4            - applying the DC voltage to an oscillating circuit for generating the  
5    electromagnetic waves;

6            - coupling a choke coil between at least one part of the energy supply device  
7    and the oscillating circuit; and

8            - operating the choke coil in the saturation state at times during the transient  
9    condition of the oscillating circuit.

1    13. The method according to claim 12, wherein the step of providing the DC  
2    voltage is performed in accordance with data to be transmitted, and includes the step  
3    of switching between two voltages at a frequency tuned to the natural frequency of the  
4    oscillating circuit in order to identify a high level state or a low level state relating to the  
5    data to be transmitted.

1    14.    A method for operating a device for generating electromagnetic waves  
2    comprising the steps of:

3       - providing an DC voltage by an energy supply device;  
4       - switching the DC voltage to an inner tapping point of a converter coil;  
5       - coupling the outer tappings of the converter coil with an oscillating circuit;  
6    wherein the switching and coupling can be performed in such a way that the oscillating  
7    circuit decays abruptly.

1    15.    The method according to claim 14, wherein the abrupt decay can be reached by  
2    decoupling of the inner tapping point and grounding of the outer tapping point.

1    16.    The method according to claim 14, wherein the switching closes while a  
2    particular data state obtains or is operated in tune to the natural frequency of the  
3    oscillating circuit with a selectable pulse width.

1    17.    The method according to Claim 14, wherein a pulse width of the switching is  
2    determined depending on the data to be transmitted.